SECTION IL (AMENDMENTS TO THE CLAIMS)

A listing of clarms 1-60 of the present application, as amended/added here.n with markings showing changes made, is provided below:

- 1-23. (Cancelled).
- 29. (Currently amended) A layered structure compristing: a substrate having an upper surface of single crystalline Si, and a layer of SiC over said upper surface,
- said Siffic SiC layer and said upper surface of single crystalline Si define an interface having an abrupt change in C concentration of more than 1 x 10¹⁸ atoms/co over a layer thickness in the range from about 6 Å to about 60 Å,

and wherein the exygen in said SiC layer is less than 1 x 10^{17} atoms/cc.

- (Original) The layered structure of claim 29 wherein said silicon cerbon alloy is single
 crystal.ine.
- Chiginal) The layered structure of claim 29 wherein said silicon carbon alloy is polycrystalline.
- 32. (Currently amended) The layered structure of claim 29 further including a layer of Si cver said layer of SiC, said 8iCASi-layer SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10¹⁸ atoms/cc over a layer trickness in the range from about 6 Å to about 60 Å and wherein the oxygen in said Si layer is less than 1 x 10¹⁷ atoms/cc.
- 33. (Currently amended) The layered structure of claim 29 waterein said layer of SiC includes a p-type dopant in the range from about 1 x 10¹⁸ to about 1 x 10²¹ atoms/x

and wherein said <u>SIC ayer with said</u> p-type dopant profile can withstand furnace anneals to terrperatures of 850° C and capid thermal armeal temperatures to 1000° C

(Original) The layered structure of claim 29 wherein said layer of SiC includes a n-type dopart in the range from about 1 x 10^{18} to about 1 x 10^{21} atoms/cc.

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- 35. (Currently amended) The layered structure of claim 33 further including a layer of Si over said layer of p-type doped SiC, said p-type doped SiC/S: SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 1018 atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10¹⁷ atoms/cc.
- 36. (Currently emended) The layered structure of claim 35 wherein said p-type-deped SiC/Si-leyer interface defined by said p-type doped SiC layer and said Si layer has bawing an abrupt change in dopant concentration above 1 x 1018 atoms/cc over a layer thickness in the targe from about 6 Å to about 60 Å.
- 37. (Currently arrended) The layered structure of claim 34 further including a layer of Si over said layer of n-type doped SiC, said n-type doped CiC. SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 1018 atomsice over a layer thickness in the range from about 6 Å to about 60 Å and wherein the oxygen in said Si layer is less than 1 x 10¹⁷ atomsice.
- 38. (Currently amended) The layered structure of claim 37 wherein said a type daped SiC/Si-layer interface defined by said n-type daped SiC layer and said Si layer has having an abrupt change in dopant concentration above 1 x 10¹⁸ atoms/oc over a layer thickness in the range from about 6 Å to about 60 Å.
- 39. (Currentity amended) The layered structure of claim 29 further including a layer of StGe over said layer of StG, said StG/StGe StC layer and said StGe leyer define an interface

having an abrust change in C concentration above 1 x :0.18 atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x 10^{17} aroms/cc.

- (Currently amended) The layered structure of claim 33 further including a layer of SiGe over said ayer of p-type doped SiC, said p-type doped SiC/Si <u>SiC</u> layer <u>and said SiGe layer define an</u> interface having an about change in C concentration above 1 x 1018 about.s/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the exygen in said SiGe layer is less than 1 x 10 ¹⁷ atoms/cc.
- 4.. (Currently amended) The layered structure of claim 34 further including a layer of SiGe over said layer of n-type doped SiC, said n-t
- 42. (Withdrawn) A layered structure comprising:
 a substrate having an upper surface of single crystalline Si, and
 a layer of SiGcC over said upper surface,

said 8:/8iGeC SiGeC layer and said upper surface of single crystalline Si define an interface having an abrupt change in C concentration above 1 x 10¹⁸ atoms/cc over a layer shickness in the range from about 6 A to about 60 A,

and wherein the oxygen in said SiGeC layer is less than 1 x 10^{17} atoms/cc.

- 43. (Withdrawn) The layered structure of claim 42 wherein said SiGeC layer is single crystalline.
- 44. (Withdrawn) The layered structure of claim 42 wherein said SiGeC layer is polycrystalline.

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(Withdrawn) The Jayered structure of claim 42 further including a layer of Si over said layer of SiGeC, said SiGeC/Si SiGeC layer and said Si layer define an interface having an abrapt change in C concentration above 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10¹⁷ atoms/cc.

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(Withdrawn) The layered structure of claim 42 wherein said layer of SiGeC includes a p-type dopent in the range from about 1 x 10¹⁸ to about 1 x 10²¹ atoms/cc and wherein said <u>SiGeC layer with said p-type dopent profile</u> can withstand furnace anneals to temperatures of 850° C and rapid thermal anneal temperatures to 1000° C.

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- (Withdrawn) The layered structure of claim 42 wherein said layer of SiGeC includes a n-type dopant in the range from about 1 x 10¹⁸ to about 1 x 10²¹ atoms/cc.
- 49. (Withdrawn) The layered structure of claim 46 further including a layer of Si over said layer of p-type doped SiGeC, said p-type doped SiGeC/Si <u>SiGeC</u> :ayer <u>and said Si layer define an</u> interface having an abrupt change in C concentration above 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si :ayer is less than 1 x 10¹⁷ atoms/cc.
- 49. (Withdrawn) The layered structure of claim 48 wherein said p-type-doped-SiGeC/Si layer interface defined by said p-type doped SiGeC layer and said Si layer has having an abrupt change in dopant concentration above 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 A to about 50 A.
- 50. (Withdrawn) The layered structure of claim 47 further including a layer of Si over said layer of n-type doped SiGeC, said n-type doped SiGeC/Si SiGeC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen it said Si layer: s less than 1 x 10¹⁷ atoms/cc.

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(Withdrawn) The layered structure of claim 50 whereir, said n-typo-copod-SiGoC/Si layer las having the interface defitted by said n-type doped SiGeC layer and said Si layer has having an abrept change in dopant concentration above 1 x 10¹⁸ atoms/co over a layer thickness in the range from about 6 A to about 60 A.

51.

(Withdrawn) The layered structure of claim 42 further including a layer of SiGe over said layer of SiGeC, said Sig

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- (Withdrawn) The layered structure of claim 46 further including a layer of SiGe over and layer of p-type doped SiGeC, seid p-type doped SiGeC/SiGe SiGeC layer and said SiGe layer define an interface having an abrupt charge in C concentration above 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x 10¹⁷ atoms/cc.
- 54. (Withdrawn) The layered structure of claim 4? further including a layer of SiGe over said layer of n-type doped SiGeC, said n-type doped SiGeC/SiGe SiGeC layer and said SiGe layer define at interface having an abrupt change in C concentration above 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than : x 10¹⁷ atoms/cc.
- 55. (Withdrawn) A layered structure comprising:

a substrate having an upper surface of single crystailine Si, and
a multifude of layers of materials selected from the group consisting of Si, SiGe,
SiC, and SiGeC over said upper surface, wherein seid multitude of layers comprise at
least one layer of SiC or SiGeC.

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said Si'SiC, SiAS-GeC, SiGes'SiC and SiGes'SiGeC layer multitude of layers and said upper surface of single crystalline Si define one or more interfaces having an abrupt change in C concentration above 1 x 10¹⁸ atoms/cc ever a layer thickness in the range from about 6 A to about 60 A,

and wherein the oxygen in said any carbon containing layer among said muititude of byens is less than 1 x 1017 atoms/cc.

 (Withdrawn) The layered structure of claim 55 wherein said multitude of layers are single crystalline. (Withdrawn) The layered structure of claim 55 wherein said multitude of layers are polycrystalline. (Withdrawn) The layered structure of claim 55 wherein said carbon containing layers includes a p-type dopant in the range from about 1 x 10¹³ to about 1 x 10²¹ atoms/cc and wherein said carbon containing layer with said p-type dopant profile can withstand furnace anneals to temperatures of 850° C and rapid thermal anneal temperatures to 1000° C.

(Withdrawn) The layered structure of claim 55 wherein said carbon containing eayers includes a n-type dopant in the range from about 1 x 10¹⁸ to about 1 x
 (9²¹ atoms/cc.

60. (New) A layered structure comprising:

a substrate having an upper surface of single crystalline Si, one or more layers of materials selected from the group consisting of Si, SiGe, SiC, and SiGeC over said upper surface, wherein said one or more material layers comprise at least one layer of SiC or SiGeC, and

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said one or more material layers and said upper surface of single crystalline Si define one or more interfaces having an abrupt change in C concentration of more than 1 x 10¹⁸ atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å, and wherein the exygen in any carbon-containing material layer among said one or

more material layers is less than 1 x 1017 atoms/cc.

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